MICHIGAN FARMER.

DEVOTED TO

AGRICULTURE, HORTICULTURE, AND RURAL AND DOMESTIC ECONOMY.

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BY H. HURLBUT,

EDITOR AND PROPRIETOR.

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[For particulars see last page.]

THE following answers have been received to enquiries addressed to the State Geologist, concerning matters important to the agriculture of the State, with a view of obtaining information upon these points for the benefit of our readers, from a source entitled to implicit reliance. Mr. Hubbard, the writer of the following answers, was formerly assistant State Geologist, and from his familiar acquaintance with the analysis of the various soils of the State, his statements and opinions upon the subjects submitted to him, may be taken as good authority.

Query 1st. "Is the general impression that the soil of our openings every where contains an abundance of lime, a correct one,—or would this be a proper application?"

From sundry analyses which I made while assistant in the State Geological Department, it appeared that the proportion of lime in the soil of our openings exceeds the average of the soils of the Eastern states, though much less than the proportion contained in what are properly called *limestone soils*. That they contain much lime might also be *inferred* from their peculiar adaptation to the production of wheat, which requires a larger supply of this mineral than most grains, and further, from the great abundance of marl beds, which derive their supplies of lime by filtration from the soils.

We must not conclude, however, from the above fact, that the application of lime to these soils is needless. The very circumstance of the formation of marl beds shows that this mineral is constantly being drawn away from the soils. And the results of analysis by distinguished chemists, exhibit a proportion of lime in the most fertile soils examined by them, equal to one-fourth part by weight; while few of ours will be found to contain more than from one to two per cent.

Query 2d. "What would be the effect of taking marl from the marl beds frequently met with on the marshes, and carrying it up on the openings to be distributed and mixed with the soil?"

If what I have said in reply to query 1st be true, the effect of an application of marl upon most of the soils of our state cannot be otherwise than beneficial. In fact, this opinion is borne out by experiment, so far as the matter has been fairly and fully tested. The effect may not be as immediately apparent as if plaster had been used, but it is undoubtedly more lasting. If plenty of vegetable manure—muck or dung—be at the same time added, the effect of both applications will be greatly increased. Should the soil have become very poor it would be folly to expect that lime alone will produce any permanently beneficial effect.—Without the addition of vegetable matters, with which the lime may enter into combination, the latter would have comparatively feeble operation, and would besides be more readily drained away and so lost to the crops.

Query 3d. "Suppose one of our marsh meadows to be drained sufficiently dry for cultivation, what would be the effect of a dressing of lime after the sod is reversed,—or is there already no deficiency of lime?"

Many of our marsh meadows contain much lime mixed with the muck or *peat*, but generally it lies in the form of a bed of marl beneath the peat. The application of lime to the dry sod, after drainage, would, it is probable, operate in several ways. First, to *neutralize the acids* with which the bog earths abound, and which render them what are termed *sour* soils. The lime if applied in an unslacked state, might hasten the decomposition of the vegetable fibre of which the peat is in a great measure composed, and thus tend to reduce it into a soil. While the combination of the lime with the vegetable extract or *geine*, (to adopt a term used by some modern chemists,) would produce what may be called a *geate of lime*, a substance which, being readily taken up by the roots of plants, furnishes them food. A further favorable effect would result from the alteration produced in the *texture and proportion of the constituent parts* of the new soil.

Query 4th. "From the composition of the soil of the openings, what are the best applications for making them productive of good grass crops?"

The meadow grasses flourish best in soils which are highly aluminous, so that, doubtless a coat of clay, after becoming well mixed with the soil, would, by giving it greater consistency and retentive powers, be the best application. But where this cannot be had, at least without great expense, I know nothing better to recommend

than to *make the soil rich.* A mixture of lime with peat or other vegetable manure, would aid much, by its action as above stated, to give the proper character to the soil which the grasses require. Might it not be advisable to sow the grass seed upon a sod reversed, or green crop; such as clover, turned under, so as to form a good and uniform base for the new sod? There is considerable variety in the soil and subsoils of the openings, in some places a stratum of clay or hard-pan lying at small depth, and perhaps with proper observation and experiment, portions of a farm might be selected which would prove tolerably well adapted to grass.

Query 5th. "Which contains most lime, the soil, or subsoil of the openings?"

That the subsoil frequently contains more lime, particularly after several years cultivation of the surface soil, by the ordinary process of ploughing and cropping, is shown, in part, by the increased fertility consequent upon a deeper ploughing than usual. Though this may not be wholly owing to the additional supply of lime obtained, it is undoubtedly so in part, since there are causes operating to exhaust the surface of calcareous matter, which but little if at all affect the subsoils.—The lime and other fertilizing particles may be lost to the surface soil by being carried down and deposited at a lower depth, as well as by exposure of the surface to atmospheric influences and more immediate contact with the roots of plants. A deep ploughing, by bringing these to the surface, may thus be made equivalent to a dressing of manure. Deep ploughing has the further recommendation that it enables the roots to extend to greater distance than they otherwise could.—They thus find more abundant supplies of food and moisture, and the size and vigor of the plant will be in proportion.

In conclusion, if it is in my power to communicate any thing which will aid you in advancing the great agricultural interests of our state, it will afford me much pleasure to do so.

Very respectfully, yours,

B. HUBBARD.

For the Michigan Farmer.

Hints to the Cultivator of Fruits.

NUMBER III.

The Plum is frequently attacked by an insect, which produces black knots or excrescences upon the limb, and not unfrequently upon the body when the tree is small. That it is the work of an insect is evident from the fact that by cutting the knots open, their eggs are found in abundance. If these excrescences are allowed to remain, the tree will soon perish. Carefully examine your trees two or three times a year, and whenever these excrescences make their appearance upon a limb, cut the limb off and burn it; or if the limb be larger, or the excrescence appear upon the body, pear it off quite to the wood, and burn your pearings. The color of the knots at first is but little darker than the bark of the tree, hence the importance of the above caution to examine carefully. Some varieties of the Plum are more subject to their attacks than others. Mr. Prince has enumerated some thirty-five varieties of the Plum that are not subject to the attacks of this insect, among which are Coe's Golden Drop, Duanes French Purple, Prince's Imperial Gage, Prince's Green Gage, Huling Superb, the White and Red Egg, Smith's Orleans, Pond's Seedling, and Bolmer's Washington, all of which are the first class of Plums. Mr. P. is mistaken with regard to some of the varieties specified; for two kinds at least which he has enumerated have been attacked in my yard. The remedy is simple and easily applied—apply it and your trees will live and thrive; neglect it and your trees *die.*

A HORTICULTURIST.

For the Michigan Farmer.

Bees.

I have often heard complaints of bees going off soon after being hived, and the owners could assign no reason. I have lost several swarms in that way, but I have learned how to prevent it.

In the first place, never put a swarm of bees into a hive made of green boards, or until it is well seasoned; nor into a hive in which there is any foul or musty smell. The boards of which it is made should be clean. Do not plane the boards for the inside of the hive, unless to get off some extraordinary roughness; and then do not make them smooth. After hiving the swarm, raise the hive a little, by putting under the bottom small sticks, say as large as your little finger, to give them plenty of air. Then procure a quantity of green bushes, and lay them over and around the hive, especially on the sunny side. Then take half a pail full of cold water, and spatter it all over and around the hive, till the bushes are quite wet. The bees will collect in the top of the hive, and remain quiet. I have practiced this method for many years, and have never lost a swarm since I commenced it. It is not necessary to rub the inside of the hive with any kinds of herbs or leaves—it would do more hurt than good. I commonly throw, say a pint of water, into a hive, so as just to wet the upper part, and sprinkle a little salt into it. This I do to amuse the bees for the time being, and to make them more contented.

It is not necessary to make any noise to settle the swarm when they come out. They will settle of their own accord. But it is prudent to hive them as soon as convenient. P.

For the Michigan Farmer.

MR. EDITOR:—

I am glad to be told by those who live in the world that it has again become quite fashionable to write. If so, I'll stick to the old motto, "out of fashion out of the world." Not wishing to bid adieu to the visionary schemes and anxious expectations of life, permit me to note down from time to time some *matters of fact,* and some *matters of thought,* for the benefit of the *rising* or *falling* generation!

The Study of Botany.

NUMBER I.

That an accurate and comprehensive knowledge of Botany forms an important acquisition for the farmer, the mechanic, the merchant, the lawyer, the physician, and the ladies, no one can entertain a doubt. Now it is true that of the classes above mentioned, many are far from being in full

possession of this knowledge. And it is also true that the causes hitherto represented as barriers to success are now becoming rather a stimulus than an obstacle to every person of enterprise. If we could say that one of these classes possesses greater natural advantages, or would be more highly benefitted in pursuing this branch of natural history, than another, that one undoubtedly is the farmer: because in his situation he is habitually seeing and handling the objects of which it treats. But, notwithstanding, it is admitted on authority that nineteen-twentieths know comparatively nothing of the structure and organs of the vegetable creation, or even their artificial classification. Why is this? Should this singular characteristic prevail in one class more than in another? The reason is obvious. The young farmer in our district schools, while he is receiving the only education he is ever to get, is never taught any thing about Natural History. On this point we can all speak from our own observation and experience. And consequently, in commencing the practical business of life, he is compelled by necessity, "the mother of invention," to follow the *good old customs* of his ancestors, however absurd and preposterous. How different with him who has become enlightened in the genuine principles of Botany. He is able to learn a lesson from every object around him. He understands the nature, habit, growth and, in short, the physiology of every plant, and shrub, and grain, and grass, which falls under the range of his observation. He looks at and examines into the principles which separate them from all inorganic matter, and traces the relation they bear to animals. He finds that, like animals, they have the functions of absorption, nutrition, exhalation, generation and destruction: only wanting digestion to elevate them on a par with animals. Being destitute of a stomach, their food is necessarily obtained already fit for present use. The presence of a stomach may be considered as one of the leading features by which the animal structure is to be distinguished from the vegetable.—The same laws which govern the animal are found to govern the vegetable, though perhaps under different modifications. Some animals cast off their cuticle annually; so do vegetables: Some are migratory, and others stationary; so are vegetables: Some have a wonderful power of preserving their temperature in either heat or cold; so have vegetables: Some are contemplated in three aspects, terrestrial, aquatic, and aerial; so are vegetables: Some are amphibious; so are vegetables. They also alike differ in the duration of their species, and in fact there is no end to analogy. That like blood, sap is the source from which all the secretions and excretions are separated—that leaves perform the office of lungs—bark that of skin—woody-fibres that of bones and muscles—roots act as mouths—instead of vegetable and animal food inorganic matter is absorbed consisting chiefly of oxide of iron, silicious and calcareous earths with water in solution—that both contain carbon, hydrogen, and oxygen as their base—that they emit oxygen, while we absorb it—that light is an important item, without which all vegetation would be colorless, and the air emitted would be void of that principle of vitality so much needed to restore the equilibrium of the atmosphere, and finally that a little iron united to the acidifier of the acid in the vegetable substance, acted upon by the decomposition of the rays of light, explains the phenomena of color. Hence we see 'when Nature takes her pencil, iron is the coloring she uses.' What a thrilling interest to the weary spirit surrounded by the cares of life amid the hours of relaxation from toil, does even a faint ray from the science of Botany afford! It is emphatically the key-stone which binds nature and the farmer together.

LOCHINVAR.

Grass Lake, April, 1845.

For the Michigan Farmer.

Joint Culture of Flax and Carrots.

MR. EDITOR:—

I wish to communicate to the farmers of Michigan through your useful paper, an experiment I made last spring in raising carrots. I had one third of an acre of ground handsomely prepared for flax. I put on three pecks of flax seed, and with the seed mixed fourteen papers of carrot seed—such papers of seed as we find at the shops. At the full of the moon in May these seeds were sown, and lightly harrowed in. The flax flourished well. The carrot seed came up, but did not grow rapidly until the flax was harvested. That was done at the proper time, and a good crop of flax was produced.

After the flax was pulled the carrots began to flourish. I expended about two days work on them in the course of the season, in hoeing and pulling the weeds. About the middle of November I took from this third of an acre forty-two bushels of good carrots. I believe I should have had more had I put on more seed; for they did not stand so thick on the ground as they might have done advantageously.

Carrots are well known to be one of the best of roots for fattening beef cattle, and they are likewise an excellent feed for horses.—Farmers of Michigan, try the above mode of growing carrots, and I fully believe you will be amply rewarded for the trial. I should recommend one fourth more of carrot seed to the same extent of ground.

CLEMENT TROWBRIDGE.

Concord, April 10, 1745.

For the Michigan Farmer.

Hints to the Cultivator of Fruits.

NUMBER IV.

The Curculio is an enemy that is not so easily disposed of as the one described in my last. The Curculio is an insect of the Beetle family, and about half the size of a common house fly. It rises from its earthy bed and chrysalis state, about the time the fruit is forming in the spring. Although a winged insect, it is generally supposed that it ascends the tree by climbing up the body. They are

frequently so numerous that they puncture and deposite an egg in every fruit, particularly those possessed of a smooth skin, as the Apricot, Nectarine and Plum. The egg thus deposited soon hatches, and produces a grub or worm which feeds upon the pulp, causing it to fall prematurely.

In those parts of the country where this insect abounds, they almost totally destroy the fruits, specified above. After the former has rioted sufficiently, it descends into the ground ready for operation in the spring by the time a new crop of fruits begins to show itself. Various modes have been recommended, and expedients adopted to destroy this insect, and avert its attacks—such as paving the ground under the tree, which will prevent the grub from descending into the earth—turning swine into the fruit yard to eat the fruit as it falls, and thus destroy the worm—placing tar upon the body of the tree to prevent their ascending—gathering up the fruit after it falls, and burning it—placing a hen and chickens under the trees to destroy the insect before it ascends the tree. I have adopted the expedient of gathering the fruit that falls prematurely, and destroying it; and I have seldom failed to get a good crop. I intend making some experiments this spring, and if they prove successful they shall be duly communicated to the Michigan Farmer. In the mean time let either of the above experiments be thoroughly tried, and I have no doubt that a quietus will be put upon many of these mischievous depredators.

A HORTICULTURIST.

Gypsum-Plaster-Sulphate of Lime.

There is, perhaps, no artificial manure so decided in its effects upon some soils, as gypsum. Its mode of action, too, is now easily understood. It acts as a direct food for some plants. There are five commonly cultivated crops which contain gypsum in sensible proportions, and to which, in consequence, it is a direct food, viz: lucern, sanfoin, red clover, rye-grass, and turnips. Now, these are precisely the crops to which the farmer finds, on most soils, gypsum to be a fertilizing top-dressing. Wheat, barley, oats, beans, and peas, do not contain a trace of this salt; and the farmer tells you that gypsum is of little or no service to these crops, however the application may be varied. That it does not operate by its attraction for atmospheric moisture, I some time since determined by my own experiments; for 1000 parts, previously dried, when exposed to air saturated for 3 hours, only gained 9 parts, while under the same circumstances a good arable soil, worth 2 guineas per acre, gained 13 parts; and when compared with other manures, the disproportion is still greater: thus soot gained 36 parts, and horse-dung 145 parts. That it is not a promoter of putrefaction, I have ascertained by mixing this salt with various animal and vegetable substances; it seemed, in every case, rather to retard than promote the spontaneous decomposition of them all. The house-wives consider *hard* water, which commonly owes its properties to the presence of this salt, to be a greater sweetener of tainted food than soft water. Davy, also, in some experiments with minced veal, thought that the addition of the gypsum rather retarded putrefaction.

There is reason to believe that the proportion of sulphate of lime found in certain plants is as essential to their growth as the presence of the other earthy salts and pure earths.—Thus, those plants which yield this salt never grow well on lands which do not contain it; those in which carbonate of lime is found never flourish in soils from which this salt is absent. Plants which abound with nitrate of potash (saltpetre), such as the sun-flower and the nettle, always languish in soils free from that salt; but when watered with a weak solution of it, their growth is very materially promoted, and the saltpetre is then found in them, as shown, upon analysis, in very sensible proportions. The same remarks apply to the growth of those plants which contain common salt, or phosphate of lime; the effect is the same, the result invariable.

Liebig contends that the nature of gypsum consists in its giving a fixed constitution to the nitrogen, or ammonia, which is brought into the soil, and is indispensable for the nutrition of plants. He says, that 100 lbs. of gypsum give as much ammonia as 6250 of horses'urine would yield it: 4 lbs. of gypsum, he affirms, increases the produce of the meadow 100 lbs. The decomposition of gypsum is slow, which, he says, explains the reason why the action of gypsum lasts for several years.

I have noticed in applying gypsum to grasses, that the weather, at the time of spreading it, has a very material influence on the result of the experiment. Its effects are never so apparent when it is sown in dry weather; but if the season is damp, so that the white powdered gypsum adheres to the leaves and stalks of the young grass, the good effect is then immediate.

The result of the analysis of clover shows that an ordinary crop usually contains from 1½ to 2 cwt. per acre of sulphate of lime.—Now, this is precisely the proportion of gypsum which the best cultivators find to be attended with the maximum benefit. It is here again that the experiments of the chemist and the farmer mutually confirm and illustrate each other; the very quantity of sulphate of lime which the first shows to be carried off the land in the clover, is precisely that which the

latter returns to it in his dressings with gypsum.

One of the chief reasons why gypsum has not been universally employed by all cultivators of the artificial grasses, arises perhaps from the fact that many good soils naturally contain sulphate of lime in sufficient abundance for the service of the plant; and, in consequence, to such lands the application of gypsum is useless—it is an attempt to supply a deficiency which does not exist. I have invariably found in those soils to which gypsum is not a manure an abundance of this salt. It is not, however, necessary for a farmer to have his soil analyzed to determine the probable advantages of applying gypsum to his clover and other grasses; there are several easy observations which will readily indicate to him the nature of the case. Thus, when he finds that those fields which once produced luxuriant crops of red clover or sainfoin will no longer yield them in abundance; if he notices the young plants spring up very numerously, but die away as the summer advances; if he finds that his fields will only grow clover successfully once in 8 or 12 years, and that his neighbors tell him his land is tired of clover, or "or clover-sick;" if he notices that even the application of farm-yard compost hardly adds to the luxuriance of his grasses; he may then safely conclude that his crops have gradually exhausted his land of sulphate of lime; and he may with every confidence of success apply a dressing of gypsum, at the rate of 2 cwt. per acre, taking care to choose a wet morning for the application; and this may be done at any season of the year, but it is best either in April or the first days of May.—*Farmer's Encyclopedia.*

The importance of plaster to the agriculture of Michigan can scarcely be overrated. It is the most efficient instrument for the production of clover, that prime fertilizer of the soil. It is especially valuable in its effects upon the lighter and more sandy soils, giving them greater consistence, and enabling them to retain for the sustenance of plants, whatever manures exist in, or are applied to them. Take the following instance, which the experience or observation of many of our readers will convince them is not exaggerated.

"When I was attending Mr. Coke's sheep-shearing, he complained to me that a portion of his estate near Wells, was a very light, sandy land; and, although he treated it in every respect like the rest of his farm, with plenty of manure, he was unable to produce more than six or eight bushels of grain per acre. I recommended him to apply gypsum, and he desired me to forward him ten tons for a trial. When I again called on him three years after, he said the land before mentioned, *by the application of gypsum*, instead of producing 6 or 8 bushels of grain, per acre, averaged 36 bushels of barley, and 20 of wheat, per statute acre."

It would seem that on certain soils, where this ingredient is entirely wanting, no application of other manures will have the effect to produce good crops of those plants in which it enters as a constituent. The lands of this State are not destitute of it to this extent—for good crops of clover *can* be raised by making the ground *rich enough*, as we have proved by our own experience. But that there is a deficiency of it, is shown by the great effects that follow its proper application.

It is to be lamented that an article so necessary to the farmer here, should be so difficult to be procured. But, dear as it is, it will, when applied to clover, return to the pocket many fold the cost of its purchase.

Madder.

The following article on the culture and use of madder, is by a correspondent of the Western Farmer and Gardener. This plant may be successfully cultivated as far North as New England, and why may it not be in Michigan? The soils most suited to its growth, 'are deep, fertile, sandy loams, not retentive of moisture, and having a considerable portion of vegetable matter in their composition. It may also be grown on the lighter descriptions of soil, of sufficient depth, and in a proper state of fertility.' The oak openings of this state then, must be precisely suited to its culture. The profit of the crop is said to be immense—the exhaustion of the soil trifling, and glutting the market out of the question. There is one serious drawback to all this, which has probably been a principal cause of the very limited introduction of the crop as an object of culture; and that is, that the proceeds are not obtained, in our climate, soon than four years from the time of planting the seed.

Madder is the root of the *Rubia tinctorum*, and of which there are two kinds. The best are those about the size of the little finger, of a transparent reddish caste, with a strong odor, and smooth bark. They may be appreciated from two to four years' growth. On drawing the crops, they should be immediately cleaned from dirt, not by washing; after which the stringy filaments, and epidermis, are removed, which is called *mulle*, as also the pith, so as to leave nothing but the segneous fibres. I think in this climate the roots may be advantageously dried in the open air, (not in the sun,) or

otherwise kilns may be substituted. Madder may be reduced to a fine powder, though it is more economical to employ the fresh root, which I have no doubt would be appreciated where the culture and manufacture was conveniently situated. It is to be remembered, the root once prepared, it must be guarded from humidity, which would considerably impair not only the sample, but the purpose to which it is applied. The roots may be considered dry enough when by squeezing them they break readily. Madder contains two coloring properties, one of which is a kind of buff, the other red, which last is not very soluble in water. By adding too much into the solvent, we lessen the high coloring effect, as the water has a greater affinity for the buff, though the red, by preference, will in a measure adhere most to the stuffs. For the application of this valuable root, which has called forth the attention and experimental operations of many, heavy premiums have been offered and awarded to define its uses fully. Some chemists profess to have discovered the true coloring principle, termed *ælisarine*. Be it as it may, it is a beautiful fast color, though to fix it properly requires much experience; and a wide field is open for experimenting on its further use. It is considered that a heavy per centage of the coloring matter is wasted, from its being so insoluble. There is no doubt that madder as a crop, from its ready culture, and its certain demand, (there being so much used in this country, for which we have to send away the money,) would realize a nett profit of from fifty to seventy-five dollars per acre, and would require less labor than our corn fields; but the difficulty in obtaining good seed, or I may say seed of any kind, in this section, is a drawback on our trials. We are told it is growing in different places, but as there is doubt of obtaining it when we go for it, and of the proper kind,) we put it off from time to time, until the season is past. I think if some of our Seed stores would keep it, it would be the means of many planting it; once let them touch the profits of ever so small a plot, and no further inducement would be requisite.

Should you deem this, or any part of it, worth communicating to the public through the pages of your valuable and interesting work, the Western Farmer and Gardner, it is at your service.

With the highest esteem for your agricultural talent, &c. &c.,

I am your obedient servant,

Sharon, Ohio. JACK SPRATT.

☞ All early garden seeds, sown in hills or drills, should have the earth raised on the north side of them.

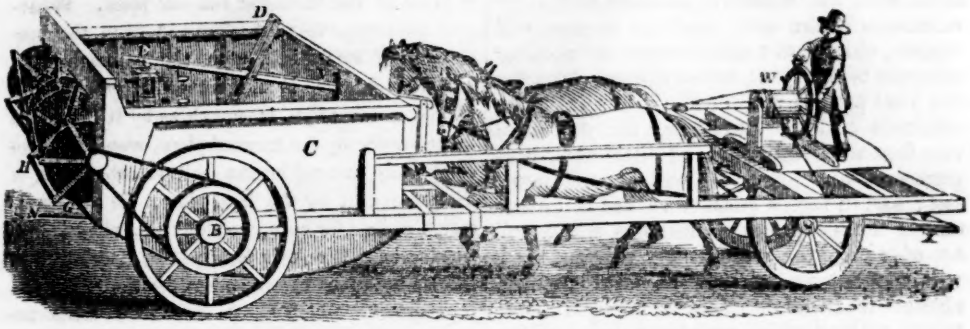
From the Albany Cultivator.

Sheep's Tails.

Mr. EDITOR—In consequence of what was published in the 8th volume of the Cultivator, from Messrs. Morrell and Bliss, on the subject of sheep's tails, I determined to let my sheep wear theirs, till I satisfied myself whether Mr. Morrell's objections were real, or only imaginary. I had lived to see the fashion of maiming horses, hogs and dogs, in that way, become almost obsolete, and was not sure but docking sheep, might be dispensed with also; although I had many doubts on the subject.—I remembered having read that naturalists insist that the works of the Creator are always perfect and peculiarly adapted to the purposes they are intended to subserve; still I could hardly believe, but that a long tailed sheep would always be dirty, and was sure they would look singular; but now after three years trial, I am fully satisfied that all the objections to long tails, are without foundation; and that the tail is not only useful, as it protects the tender parts it was designed to cover, from extreme cold or heat, but also ornamental, the animal not wanting a member designed by nature for its comfort. I must say that although Mr. Bliss was called eccentric, for supposing a sheep should wear its tail, I think that without one, if it does not look absolutely vulgar, it does very ungenteel. I have now about three hundred long tailed ewes; and shall have all my flock so after my old stock is gone. If the tails are all shorne before the sheep are turned to grass, there will be no more dirty ones, than if they had no tails; and the wool of course will pay more than four fold for shearing. Will not many try this humane experiment to satisfy themselves; at any rate, none should condemn it without a fair trial. DANIEL S. CURTIS.

Canaan Centre, Feb. 10, 1845.

TO RAISE FINE MELONS.—Holes two feet broad, twenty inches deep, filled one foot with garden rubbish and unrotted manures, beat down hard, and watered two or three buckets full, then filled up to the top with rich soil; on this spread one inch of fine compost, or well rotted manures, compact, but not hard; stick the seeds, say twenty or thirty to a hill, the upper end of the seed to be a little below the surface of the compost; brush over the hills with the hand to fill up the holes; then cover the hills with an inch of clear sand, and often watered; hills ten feet apart, three plants to the hill left, thinned when the plants have six leaves, then take off the centre shoot with a sharp pen-knife, and when the side shoots are six inches long, take off all but three; secure these to the ground with cross sticks.—*Western Farmer and Gardner.*



Esterly's Patent Harvesting Machine.

This machine is calculated for cutting the heads from standing grain, leaving the straw behind. Where grain stands up well, it is warranted to cut the heads from 25 acres of wheat per day—the power employed being three horses, requiring two men and a boy to manage the machine. It is claimed that from one to three bushels more grain is saved per acre by the use of this machine, than is saved in the usual way. As the heads of the grain are cut off, they are received into a large box, or "receiver," and when that is filled, the heads may be conveyed to the barn, or secured in cribs—the latter being considered preferable, as they afford the grain a better chance to dry. From half an acre to an acre of wheat, (according to the condition of the crop,) may be cut at a time, without unloading the "receiver." The operation of threshing is much facilitated by this mode of cutting grain—making a saving in this respect of from fifty to seventy-five per cent. It is confidently believed that this machine is destined to effect a great improvement in the saving of labor and expense in harvesting grain, and preparing it for market. By the use of it, the farmer is enabled to cut and secure, at the proper time and in good order, his wheat crop, with only the ordinary number of hands employed on his farm, besides abolishing the severe labor and drudgery of harvesting in the usual mode. The machine is manufactured by the patentee, George Esterly, Heart-Prairie, Wisconsin, and will shortly be for sale at Chicago, and other central points in the western country.—*Alb. Cult.*

From the Cambridge (Md.) Chronicle.

On the Culture of Indian Corn.

The question of the best method of culture of Indian corn, is one of primary importance; and reports of the various experiments that have resulted favorably, may tend to settle the interesting problem.

The partial practice of my method "by late fall or winter plowing" and "drill planting," for more than fifteen years, and my exclusive adoption of it for half that period, and the obvious reasons in favor of it, have concurred to satisfy me, by the general results, in various kinds of seasons, that it is the best mode of growing that valuable staple of our country—and, at the same time, of sustaining or improving the soil on which it is grown.

I would be understood, in my remarks, to confine them to lands having a due portion of alumina, and at least a moderate coating of grass, or vegetable matters of any kind, on the surface. The method is the following:

During the winter, or late in the fall, the field is plowed under a true and well turned furrow, sufficiently deep to avoid re-turning the sward in the subsequent work; (the accuracy of this opinion will have considerable influence on the eventual management and success of the method;) if well done, there will be but little occason for *hoe* labor, to clear away the grass, as but little will vegetate from the inverted sward.

In this state, the whole will remain till the season for planting, when a light plow is skimmed over the surface in the direction of the first furrow. The "corn planter" is then introduced, which furrows, drops, covers, rakes and rolls the corn, in one operation; or, it may be done, though more tediously, without this instrument.

The lines in which the grains are dropped, are four feet apart; the grain in the lines, about twenty-four inches, and two plants left.

When the corn is sufficiently large, a light double-furrowing, single-horse plow is run as near to the plant as possible, throwing the earth from it, and as soon as convenient, the earth is returned to it. This is the whole of my plowing—then follows the cultivator, as shallow and lightly as possible, to keep the surface at all times friable and open to the free access of sun and air, and not omitting the roller whenever necessary for fine pulverization, which is in all cases essential to good culture. The drier the season, the more the cultivator is used. The hoe is but little required in ordinary seasons for grass—and never, in any season, to make the slightest hill—and the general cultivation is as *level* as practicable.

By the free admission of the fermentative agents—sun and air—the inverted sward will furnish the soil with the soluble and nutrient gases. The products of its decomposition, which, though volatile, will be fixed by their

union with the *moisture*, *alumina* and other *substances* in the soil; and this process will happen, chiefly, at a time to meet the peculiar demands of the plant, whose organic structure and vital powers will enable it to seize upon, eliminate and apply to its uses the nutriment thus furnished; ammonia and nitric acid, there generated and preserved, will abound in the soil; and in fact, a *quasi* nitre bed is formed among the spongioles of the roots, which will not only yield the gases it may contain, but it will, as is known to every physical enquirer, abstract from the atmosphere, *nitrogen* indefinitely, without which element, a deficit of frequent occurrence, the grain, though it may form and ripen, yet will not contain an essential constituent of food for animal sustenance.

By the culture contended for, the porous surface of the inverted turf is presented as a sponge to imbibe readily the ammonia and nitric and carbonic acids, held in solution by the rain and snow which fall upon it, and become fixed as before explained, for the use of the present and future vegetation.

Contrast this with the usual practice of spring and summer plowing, and *cross-plowing;* the sward recently turned, is thrown back into its former position; the grass is, as it were, re-planted for much *hoe* labor, as it had not remained in a condition to suffer decomposition; or, so far as it had undergone this process, the products are wasted by exposure on the surface to the action of the sun and air, and a total loss to the plant and soil, or nearly so, is the inevitable consequence.

By *drill* planting too, we may have more than double the number of plants that the usual method allows in safety. Leaving two plants at a point, the distances named, will make about ten thousand stocks to the acre, and the lines arranged in a north and south direction, they will have abundance of space for air and light.

Practically, I have found this to be true.—My crops have suffered from drouth less than those under the ordinary practice of cross plowing, which is manifestly to be ascribed to the continual flow of vapours among the roots and their ascent around the plant from the fermenting mass below, promoted by the frequent use of the cultivator, preserving a loose, open surface, and allowing the free entrance of the fermentative agents, heat, air and mosture.

Much more, in *fact* and in theory, might be adduced in favor of the practice indicated, but my paper has already exceeded the limits designed, and I will not now extend the discussion.

JOSEPH E. MUSE.

Feb. 12, 1845.

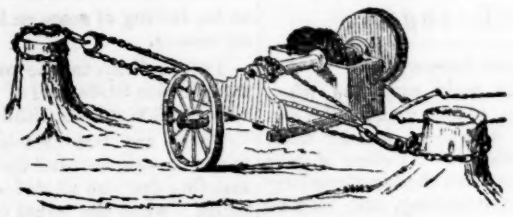
☞The above goes strongly to corroborate the arguments of Mr. Grout in our last number in favor of the Michigan sub-soil plow. Whatever advantage is to be derived from the deep plowing of sward land with the common plow, would be obtained in an increased degree by this Michigan invention, inasmuch as by it the sward turned under by the forward plow, would be more completely covered by the soil below, which is thrown over it by the hind plow. In the preparation of land for corn, we think this plow is destined to be particularly serviceable; the deep tilth furnishing an increased pasture for the roots, and the depth to which weeds and their seeds are thrown, either entirely preventing their germination, or so retarding it as to give the corn a long and of course most favorable start—thus lessening the amount of work for the hoe.

Planting in drills by the aid of a corn-planter as above mentioned, besides the advantage of letting each stalk stand by itself, is a great saving of labor—one man being thus enabled to plant 5 acres per day. This is no small item at a time of year when every day gained, tells upon the prosperity of the whole season.

DIARRHŒA OR SCOURS IN CALVES.—Young calves are very liable to this affection, and not unfrequently die from it. It is, (says the Cattle Doctor,) in a majority of cases, the consequence of neglect. The calf has been too early exposed to cold and wet, or has been half starved, and then one full and hearty meal often disarranges the whole alimentary canal—the mucous coat of the intestines becomes inflamed, and violent purging ensues.

Remedy.—As being more simple, and we have no doubt equally efficacious, we give, instead of the remedies prescribed in the Cattle Doctor, the following by Lovett Peters, Esq., of Westboro', originally published in this paper, and which he pronounces an infallible cure. "I call it," says he, "infallible, because in thirty years' use of it I have never known it to fail in effecting a cure, by once giving it, except in one instance, and then a second dose proved effectual. Put into a suitable bottle about half a pint of good cider—(not sweet nor bottled cider.) Then open a vein in the neck of the calf, and let into the bottle about the same quantity of blood. Shake it well together quickly, and before it has time to coagulate, put it down the calf's throat, which is easily done with the bottle." [This remedy is quoted by Mr. Skinner, in his American edition of the Cattle Doctor.]

Sucking Calves.—It is stated on the authority of a practical farmer, very successful in the management of calves, that nothing is more conducive to the thriving of sucking calves than to keep in their pens an ample supply of *dry yellow loam.* They will, he says, eat it eagerly, and he considers it of more value for them than Indian meal. Perhaps its beneficial effects are due to its absorbing or correcting the acids in the stomach. —*N. E. Farmer.*



Hall's Stump Machine.

To this machine the N. Y. State Agricultural Society awarded the premium. It is used effectually in pulling pine stumps of the worst description. Mr. Hall, the inventor, spent six years, and nearly ten thousand dollars in bringing the machine to its present state of excellence. It requires 3 men and a boy, with a small horse, to work it to advantage. Its cost with all the chains, levers, &c., is from $300 to $400.

From the Indiana Farmer and Gardener.

What shall be done with Ashes?

Mr. Editor:—I have just got through with soap making, and, as usual, have a large quantity of leached and unleached ashes on hand. How shall I use them to the best advantage in the garden? A Female Reader.

Without stopping to give a detail of the chemical composition of wood ashes, we shall give a practical reply to our esteemed correspondent.—Experiments have seemed to show that, for purposes of tillage, *leached* ashes are just as good as the *unleached*. So that housewives may have all the use of their ashes for soap, and then employ them in the garden. Leached ashes become better by being exposed for some time to the air, absorbing from the atmosphere fertilizing qualities, (carbonic acid ?)

So valuable are ashes regarded in Europe, that they are frequently hauled by farmers from twenty miles distance—and on Long Island they bring eight cents a bushel.

The ashes of different kinds of wood are of very unequal value—that of the oak the least, and that of the beach the most valuable. The latter wood constitutes two-thirds of the fire wood of this region, and the ashes are therefore the very best.

A coat of ashes may be laid, in the spring, over the whole garden and spaded in with the barnyard manure.

They may be dug in about gooseberry and currant bushes.

They are excellent about the trunks of fruit trees, spreading the old each year, and renewing the deposite.

They may be thinly spread over the grass plat in the door yard, as they will give vigor and deeper color and strength to the grass.

I have usually added about one shovelfull of ashes to every *twenty* in making a compost for flowers, roses, shrubs, &c.

Ashes are peculiarly good for all kinds of melon, squash, and cucumber vines. This is well known to those who raise water melons on burnt fields, on old charcoal pits, &c. We have seen statements of cucumbers being planted upon a peck of pure, leached ashes, in a hole in the ground, and thriving with great vigor. The ashes of vines shew a great amount of potash; and as wood ashes afford this substance abundantly, its use would seem to be indicated by theory as well as confirmed by experiment.

Lastly, whenever ground is liable to suffer severely from drought, we would advise a liberal use of ashes and salt.

Experiments in Planting.—The advantages of free admission of light, and free circulation of air, to the growth of plants, are in a good degree obvious to persons of any experience in agriculture. So important are these influences to Indian corn, that an advantage is known to result from giving the widest space to rows running north and south. This more readily admits the light and heat of the sun, than rows running in a contrary direction.—It has been suggested that planting corn and potatoes in alternate rows, or in alternations of two rows each, would give a greater aggregate product for a given extent of land, than if each crop were planted entirely by itself.—Experiments relative to this point have been made in Massachusetts for a few years past, under the direction of the Plymouth County Ag. Society, and the results so far, indicate considerable advantage in favor of the mode of alternate planting. Mr. Nathan Whitman, who received, for an experiment of this kind, made last season, a premium of $15, planted half an acre with corn alone; from this was harvested 42 43-75 bushels; half an acre with potatoes; from this was harvested 136 7-56 bushels; and half an acre in alternate rows of corn and potatoes; from this was harvested 23 50-75 bushels of corn, and 79 40-56 bushels of potatoes. In this experiment there appears to have been a gain in mixed planting of ten bushels of corn to the acre, and twenty-six bushels of potatoes. Some experiments reported to this society in former years, we believe showed about the same results.—*Alb. Cult.*

Cure for Fistula, or Poll Evil.—Clear the cavity as near as may well be, then fill it with powdered saleratus or pearlash.

Cure for Proud Flesh in Wounds.—Take equal quantities of soot and powdered charcoal, and sprinkle liberally in the wounds.

Domestic Economy.

Editor of the Indiana Farmer and Gardener:

I have often helped to make soap, and when my weary soul despaired of ever making the discordant elements unite, I used to wonder what was the secret of the matter. As some of your readers may be equally curious, the accompanying article will prove not uninteresting, and may be entitled,

Chemistry of Soap.

Every one uses soap, or ought to; and every farmer's wife, if she does her duty makes it; but very few, even of our most skillful housewives, understand any thing more than the mere mechanical part of the process, and are content, if, by a happy combination of "good luck and awkwardness," they succeed in making a barrel of soft soap and a few bars of hard—enough to last till next time.

I do not intend in this communication to add another to the thousand and one receipts for making this article, nor is it necessary; but it is probable, that your readers may wish to know the reason, if any there be, why they are told to do so and so, in this mysterious process, that they may go to work next time, and have a little knowledge as well as luck, to charm the refractory soap into being.

All soaps, no matter what they are called, are essentially the same; and the process for one is the process for all, modified only by the taste of the maker, according to rules which are empirical, and are patent secrets—the property of the respective manufacturers.

Whenever a pure caustic alkali is added to a fatty or oily substance, a combination takes place, which results in a new article unlike either element, viz—soap.

Spirits of hartshorn (aqua ammoniæ) added to sweet oil, produces a soap, not like the common article, but the volatile liniment so commonly used in medicine.

Caustic soda and sweet oil are the ingredients of Castile Soap; and the same alkali with common animal oil (soap grease) is our common yellow hard soap.

Caustic potash, or common lye, is well known as the alkaline element of our homely soft soap.

In all these cases the reaction is somewhat complex. The alkali does not unite directly with the oil or fat, but first resolves it into two acids,* which then unite with the alkali, and generate the neutral substance, soap. After oil has thus been separated into two elements, they may each be obtained pure, one in the form of stearine (an imperfect specimen of which is found in the star candles) and elain, or pure oil, as watch oil.—Hence it is easily seen that the process for making lard oil and star candles, *might be* carried on thus: by resolving lard by means of an alkali, into the required elements in the combined form of soap, and then by a reagent obtaining the oil and candles separate and pure. But I am, or ought to be, talking of soap, so let me return from this digression.

Potash Soap, is the one, of course, which is made in this State, and of which I shall therefore, now speak more specifically.

There are two parties in soap making, as in medicine—*the hot and the cold practice:* the one insisting that the *whole body* of the soap must be boiled; while the other claims that all may be accomplished in cool blood, or rather barrel. If the ley be too weak when it is added to the grease, it will all have to be boiled, not to make it *saponify*, but to evaporate the water and get thick soap, instead of thin watery slime. But if the lye be of a standard strength, and is pure and clear, it will be enough to heat the lye only and pour it in requisite portions upon the grease, previously well tried out and placed in a barrel; a few days time will answer the purpose of a few hours boiling, while it saves the dirt and heat and trouble of handling kettle after kettle full of the two, (to the neat house wife at least,) filthy materials.

But why does not soap always *come?*

Because, very often, the lye is not strong enough to give the requisite amount of potash without adding too much of the water of solution. The test is, that it must float an egg—not a stale or rotten egg, for they are *light*, and would float on water, but a fresh one, just from the hay-loft; and it must float it up fairly, so as to show a spot above the liquid as large as a cent. Lye such as this, will put grease into a quaking jelly quickly, and make no fuss at all about the matter.

But, very often, when the ashes stand for some time in the open air, before they are leached, or when the lye has been exposed after it has been drawn, or if the water, as it is in many springs, is impregnated with carbonic acid, then the lye as it comes through is not a pure solution of *caustic potash*, but of the *carbonate of potash;* and bearing in mind what was said above of the resolution of the grease into two acids, I shall be understood when I say that the alkali clings so strongly to the carbonic acid that it cannot leave it to combine with the weaker acids afforded by the decomposed oils. Hence no charms nor boiling can effect the combination desired, and "soap won't come."

To avoid this difficulty, we must be rid of the carbonic acid; which is very simply accomplished by placing fresh burnt lime (quick lime) at the bottom of the leach-tub just over the straw, so that the lye must filter through it before it is taken up; the effect of this is that the carbonic acid leaves the potash and unites with the lime, so that the lye is a pure solution of caustic potash saving a small quantity of lime, which is not injurious, but which is sparingly soluble in the liquid. Or if lime be not at hand when the leach is set up, a handful or two of it thrown into the lye while boiling, and briskly stirred, and the whole then allowed to settle, will afford i. e. the clear liquid, which is poured off, a lye as pure as that prepared in the first method. In both cases, however, the lye should either be used immediately or kept covered so as to exclude the air.

I have said that hard yellow soap is *soda soap*, and yet I suppose many of your readers will say, "why, I make hard soap easy enough out of pot-

*By acid is meant in this case, not a sour article—sour to the taste; but in chemistry, any thing is called acid which will unite with an alkali and produce a new substance which exhibits the properties of neither of its generating elements: thus, common white sand is according to the books, silicic acid.

ash lye—I never think of using soda at all!—What can he mean?"

It is necessary, in order to make hard soap, that the material should be boiled just as for the soft on the "hot practice," and when it becomes good and thick, add a quantity of salt, and continue the heat. The surface will change color, and upon examination it will be found that the kettle contains two distinct substances, viz: at the top and floating on a dark colored fluid below, is the *thick* frothy mass, which on cooling and draining proves to be hard soap, while below is a solution of muriate of potash.

The explanation of this change is a beautiful instance of what chemists call double decomposition.

Before we put the salt into the boiling mass we had potash combined with margaric and oleic acids, i. e. common soft soap; to this we add common salt, which is itself a compound body, being a muriate of soda, i. e. muriatic acid and caustic soda; the double action then is, that the potash lays hold of the muriatic acid and thus forms a muriate of potash, leaving its former oily companion to contract a new alliance with the soda and generate hard soda soap. Those who live near the sea, where seaweed and other marine plants are obtained, can effect this result directly, without the intervention of potash. If the ashes of seaweed are leached, the product will be found to be a lye not of potash, but of soda, and if this be added to an oil or fat, the result will be a hard soap, similar in all respects to that procured by the process first detailed. This is the identical process by which the white Marseilles soap, and the mottled Castile soap are made. The only difference between the two being that, in the latter, the impure coloring matter and a slight excess of alkali is allowed to remain, which is not found in the former.

In general it is true that a soap that is intended to possess superior washing power, should contain an excess of the alkali, while the milder cosmetic soaps and toilet are more nearly neutral, and in practice are found to be more frothy than useful. Like all other articles for which there is great demand, soap is often adulterated; the sticky bar soap of the cities is so largely composed of rosin that it may sometimes be detected by the odor, and always by the wash. The rosin is used to supply the place of the more expensive article, grease, while the consumer would much prefer to purchase the rosin and the soap in separate portions, mixing them only when he saw fit.

Those who are curious to follow out more minutely the chemistry of this useful and necessary substance, can find it treated more or less completely in most of our modern chemistries, particularly the manuals of Graham, Brande, and in the lectures of Liebig. F.

To Improve the Flavor of Coffee.—To each pound of roasted Coffee, add forty or fifty grains of carbonate of soda. In addition to improving the flavor, the soda makes the Coffee more healthy, as it neutralizes the acid contained in the infusion.—*Am. Agriculturist.*

MICHIGAN FARMER.

JACKSON, MAY, 1845.

To Correspondents.

As our paper will hereafter be issued punctually by the first of each month, Correspondents are requested to send us their favors by the 15th of the preceding month.

Corn Stalk Sugar.

The various experiments made the past season in the manufacture of this articcle, were attended with very different degrees of success. In one instance a farmer in Indiana succeeded in producing at the rate of 500 lbs. of sugar of fair quality to the acre. In other cases the experimenters failed to make crystalizable sugar. It is due to truth to say, that the greater number of the experiments resulted in either partial or entire failure, or at least in such a limited measure of success as would make the production of it unprofitble. Still the fact that in some instances the result was otherwise, shows that the profitable manufacture of sugar from the corn-stalk is possible—and the failures may well be attributed to those imperfections in the process which always accompany the infancy of an art, and which subsequent experience will remove.

It is the opinion of Dr. Jackson that the sugar in the corn stalk exists in two different states, in different periods of its growth. At first in a state not admitting of crystalization—that of grape sugar. Afterwards, when it has attained the proper degree of maturity, in the state of crystalizable or cane sugar. He thinks that the great point is to ascertain precisely the right period to cut the stalk; and to determine this, experiments are to be instituted the ensuing season, and conducted with great care.

He further suggests that it may be the preferable way to dry the stalks, and reserve the manufacture of the sugar until winter: which, if feasible, would have the obvious advantage of deferring the work until the farmer has a season of leisure. This drying process is extensively pursued by the French, in the manufacture of sugar from the beet.

In an experiment made by him, to test the comparative purity of corn stalk and cane sugar, the result of a careful analysis was, that the two specimens, one from the corn stalk, and the other fair Havana sugar, were precisely equal.

The inference derivable from the facts thus far developed relating to this subject would seem to be, that while the art is not yet sufficiently advanced, to enable us to recommend the extensive

culture of corn for this purpose as a source of profit, enough has been done to make it an interesting field of experiment, and to lead without extravagance to a hope of ultimate success.

In preparing a field for this purpose, plant very closely—say, hills three feet apart one way, and one and a half the other; or better, plant in drills with a corn-planter—dropping a seed every six inches. Cultivate in the usual manner, and when the ears form, pull them off. It is recommended to cut the stalks when the leaves are dead about one-third up. Press out the juice and boil immediately.

Ditching Plough.

We would commend this implement to the notice and patronage of those farmers who have marsh meadows to reclaim, in such counties as the right has as yet been purchased. We cannot speak of it from personal inspection of its work—but understand that it operates well, cutting a ditch 3 feet wide at the top, 16 inches at the bottom, and 18 inches in depth, and depositing the muck thrown out, about a foot from the edges of the ditch on each side. In favorable circumstances, one hundred rods of such a ditch are cut with ease by two men and a yoke of cattle with this plough in a day. Ditches, we understand, are cut by those owing the implement, at 10 or 12 cents per rod. We hope the cheap rate at which ditching can now be done, will induce many farmers to set to work reclaiming their marshes, during the ensuing season.

Think of the difference in point of pleasantness between having on one's premises a marsh, with more or less of stagnant water, and grown over with wild grass; and a dry level meadow, covered with timothy and red top, and perhaps ultimately white clover. And think of the difference in profit too, between mowing one or two tons per acre of "Massasauga hay," (every true Wolverine knows what that is,) and from two to three tons of the cultivated grasses. Good taste, true economy, and regard for health, all urge forward the work.

Mix one part plaster, and five of unleached ashes, and apply a handful when the corn is up.

To Preserve Eggs.—Dip them in a strong solution of lime, like whitewash; take them out, and let them dry; then pack them away in powdered chalk or plaster of Paris. The Germans practice this with success.

☞ Spirits of Turpentine, applied with a feather, and turned two or three times in the gullet, or just above the tongue, at the root, is a cure for the *gapes* in chickens; sometimes it requires two or three aplications.

From the Southern Cultivator.

Necessity of Rotation.

In one of the lectures of Prof. Johnston we find the above named doctrine made so plain that any body can understand it. We commend it to all who suppose that because their lands do not give out in two or three years, they never will.

"The following table skows the quantity of inorganic matter in 1000 lbs. of hay:—

	In rye grass hay.	Red Clover.	White do.	Lucerne
Potash,	8.8	19.9	31.0	13.4
Soda,	3.9	5.3	5.8	6.2
Lime,	7.3	27.8	23.5	48.3
Alumina,	0.3	0.2	1.9	0.3
Oxide of Iron,	0.0	0.0	0.6	0.3
Oxide of Manganese,	0.0	0.0	0.0	0.0
Silica,	27.7	3.6	14.7	3.3
Sulphuric Acid,	3.5	4.5	3.5	4.0
Phosphoric Acid,	0.3	6.6	5.0	13.1
Carbonic Acid,	0.1	3.6	2.1	3.2

The soil must contain all of the above, otherwise it cannot build up the plant which contains them; and just in proportion to the supply of the necessary ingredients, in their proper proportions, will be the luxuriance or stuntedness of the crop. Every plant that grows requires, in accordance with the nature and composition of soil, the proportion of the ingredients in its ashes. If no alternation of crops is made, nature will become exhausted in some of her resources, and the plant, for want of nourishment, must die. We have facts to prove that nature will not for ever grow the same plant on the same soil. The Black Forest consisted first of oak, then of pine, and now it is again covered with broad-leaved trees; and as with trees, so with crops—and as on a large, so on a small scale.—Different modes of husbandry have been adopted. Instead of oats being grown fifteen or twenty years on the same soil, the rotation of three white crops and six years' grass was adopted; this also has become antiquated, and now the preferable alternation of white and green crops is adopted. Alternating crops, and adding such manures as have been carried off by preceding crops, is the only profitable mode of cultivation, while nature will also assist by the going on of certain circumstances, such as the decomposition of minerals, &c.—A soil containing just sufficient lime for a luxuriant crop of rye-grass, would be far deficient for either clover or lucerne. The soil must contain in abundance what your crop specially requires, and consequently the necessity of selecting the manure to suit the crop wanted; and skillful farmers will put this principle into practice, and also select crops suitable for the purpose to which they are to be applied; thus, if you wish to feed for milk you select a plant containing an abundant supply of phosphoric acid; and this plant will not grow on land

which has been exhausted of this acid, though it contain all other necessary ingredients in abundance. The ground becomes exhausted in many ways. By cropping too long with either one kind or different kinds of grain, and carrying off both grain and straw, it becomes exhausted very speedily. It becomes exhausted of some of its soluble matter by the action of rains, just in proportion to the wetness of the soil. By the application of proper manures, the waste may be replaced. Feeding will replace a portion of the waste of solid matter; but a great portion of the soluble is lost, both by being, to a small extent, irrecoverable, and because of the direct waste by carelessness or ignorance. These soluble or saline substances are principally contained in the urine of cattle, and just in proportion as it is lost, so is the direct waste. The urine of a single cow is valued in Flanders at £2 per annum. What, then, must be the loss on the whole of the cows in Great Britain? Guano is not a more valuable manure than the urine of cattle; and yet farmers carry off this from their yards by large ditches, as if it were only, what it has been too long considered, a nuisance, while they will give £10 a ton for an article of no greater value. By building suitable tanks, the whole of the farm-yard matter might be preserved, and 900 lbs. of good solid matter, equal to the best Peruvian guano, would be the annual produce of one cow.—Tanks ought to be made capable of containing all the urine voided in four months; they should be divided in the middle, and one end when filled, should be allowed to ferment. This fermentation would be completed in about six weeks, when it should be carried to the land and applied as we now apply guano and water. In the process of fermentation, the ammonia is apt to escape; but by mixing the urine with three times its bulk of water, this will be prevented to a very considerable extent, as shown in the following table:

Saline Matter and Ammonia in the Urine voided by a Cow in twelve months.

Recent urine contains—solid matter,	900 lbs.	Yields of Ammonia,	226
Kept 6 weeks—mixed with water,	850	" "	200
Kept six weeks, unmixed,	550	" "	30

We have frequently been astonished at the results of certain saline substances when scattered over unhealthy plants, by the first shower washed into the soil, and immediately consumed by the plant as its proper and necessary food; and just in proportion to the ease with which it gets the substances upon which it is supported, and of which it is composed, will it vegetate. Suppose any of the substances of which a plant is composed to be already in the ground in sufficient proportion, then any addition cannot do good. Suppose soda to be in sufficient quantity for hay, any addition would be unprofitable for a rye-grass crop, while it would be of immense benefit to double the quantity for clover or lucerne. And again, some soils contain it in sufficient quantity for every variety of crop, consequently any addition would be unprofitable. Hence the reason of so many conflicting opinions respecting the utility of manures. A. B. has a field deficient in the due proportion of gypsum; and, by applying it to his crop, he finds the most beneficial effects. C. D. hears of these results, and applies it to his fields, which have already an abundant quantity of it, but require something else; and the consequence is, it does no good, and he pronounces it worthless as a manure; and his next neighbor, E. F., who would have been benefitted by its application, has been dissuaded from applying it. Milk contains so much bony earth that in seventy-five years a cow pastured on an acre of land will carry off a ton of bone; hence some lands used for dairy purposes in Cheshire had, in the course of years, deteriorated to such a degree that they were not worth more than from 5s. to 10s. per acre, just because the cows pastured on them had carried away all the bone out of the soil. Bone dust was at length applied as a top dressing, and the results were so astonishiug that the land increased 700 per cent. in value, and the rector's tithes were increased five fold.—Any, or all other manures, had they wanted bone, would have proved ineffectual. The bones added just what had gradually been taken off in the lapse of years, in consequence of the peculiar husbandry of the district.

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Rotation and manuring, then, are the two grand agents in all productive farming. It is of the former only that we design at this time to offer a few further remarks.

The roots of every plant perform a double office—that of absorption and excretion. By the former, they imbibe from the soil such ingredients as are necessary to their growth—by the latter they return to the soil such matters as are unsuited to the sustenance of the plant. During the growth of a plant these two functions are constantly performed. The effect is obvious. 1st. The soil will be exhausted, to a greater or less degree, of certain ingredients, taken up and assimilated by the plant. 2nd. It will be filled with substances which are rejected, and can never be made use of by that plant, until they shall have undergone some essential modification. Here, then, is a double reason for a change of vegetable. Some other plant will require little or none of those ingredients which this has exhausted, and

the matters excreted by the one as unsuitable, will be taken up and appropriated by the other. Upon these two principles, the system of rotation of crops is believed mainly to rest.

This affords a ready explanation of the fact which every observing farmer must have noticed, that successive crops of the same grain, are sure to produce deterioration. By manuring of precisely the right description, we should, indeed, restore the ingredients of which the soil had become exhausted. But even this is not found to answer fully the purpose designed, unless accompanied also by a change of crop. Wherever a judicious system of rotation has been practiced, the land has been found to retain its productiveness, with much less aid from manures than without such system. It answers then, so far, *in place of manuring*—and, as it costs nothing, it is the very cheapest way of assisting to keep a farm *in good heart.*

Another consideration of great moment, tending to the same end, is that each crop is liable to be infested by its particular insects; and where the same crop is continued to be raised successively, these have a full opportunity to propagate and increase their numbers. Hence, we believe, the great prevalence of the wheat insect, when this grain is cultivated to excess. Change the crop, and the depredators, no longer finding their appropriate lodging places and food, cease to multiply.

We lay it down, therefore, as a maxim, *that no farmer should be without a regular system of rotation of crops.* As soon as he has brought his land under cultivation, his first care should be to adopt *some* system. Any is better than none—though one which tends to bring up his land into higher condition, is of course better than one which exhausts it, or leaves it stationary. The following principles, which we find stated by a correspondent of the Albany Cultivator, will serve as guides in forming a system.

"1st. The degree in which a plant impoverishes the soil, depends much upon the amount of food it returns to it, in the decomposition of its stalks and roots that remain.

"2d. One plant draws its nourishment from a depth in the ground, another from the surface.

"3d. Some plants receive nearly all their food from the earth, while others are fed almost wholly from the atmosphere.

"4th. The cultivation of the small grains renders the land foul; the hoed crops tend to free it from weeds.

"5th. Those plants that are permitted to ripen their seeds, are great exhausters of the soil; while those that do not mature their seeds exhaust it comparatively little.

"6th. In making choice of crops to alternate with, care should be taken to select those that are best adapted to the soil."

Guided by the principles here laid down, somewhat modified by circumstances, we suggest for the consideration of farmers, the following system of rotation, as suited to most of the lands of this state.

Let a farm be divided into eight equal portions, or as nearly equal as may be.

	FIRST DIVISION.
1845	Wheat.
1846	Corn and roots, with manure
1847	Barley, oats or spring wheat seeded with clover.
1848	Clover, mown.
1849	Clover, pastured.
1850	Clover, pastured, and turned under for wheat.
1851	Wheat.
1852	Peas, beans, and barley, followed by wheat.

	THIRD DIVISION.
1845	Barley, oats, or spring wheat seeded with clover.
1846	Clover, mown.
1847	Clover, pastured.
1848	Clover, pastured, and turned under for wheat.
1849	Wheat.
1850	Peas, beans, and barley, followed by wheat.
1851	Wheat
1852	Corn and roots, with manure.

	FIFTH DIVISION.
1845	Clover, pastured.
1846	Clover, pastured, and turned under for wheat.
1847	Wheat.
1848	Peas, beans, and barley, followed by wheat.
1849	Wheat.
1850	Corn and roots, with manure.
1851	Barley, oats, and spring wheat, seeded with clover.
1852	Clover, mown.

	SEVENTH DIVISION.
1845	Wheat.
1846	Peas, beans, and barley, followed by wheat.
1847	Wheat.
1848	Corn and roots, with manure.
1849	Barley, oats, and spring wheat, seeded with clover
1850	Clover, mown.
1851	Clover, pastured.
1842	Clover, pastured, and turned under for wheat.

	SECOND DIVISION.
	Corn and roots, with manure.
	Barley, oats, or spring wheat seeded with clover.
	Clover, mown.
	Clover, pastured.
	Clover, pastured, and turned under for wheat.
	Wheat.
	Peas, beans, and barley, followed by wheat.
	Wheat.

	FOURTH DIVISION.
	Clover, mown.
	Clover, pastured.
	Clover, pastured. and turned under for wheat.
	Wheat.
	Peas, beans, and barley, followed by wheat.
	Wheat.
	Corn and roots, with manure.
	Barley, oats, and spring wheat, seeded with clover.

	SIXTH DIVISION.
	Clover, pastured, and turned under for wheat.
	Wheat.
	Peas, beans, and barley, followed by wheat.
	Wheat.
	Corn and roots, with manure.
	Barley, oats, and spring wheat, seeded with clover.
	Clover, mown.
	Clover, pastured.

	EIGHTH DIVISION.
	Peas, beans, and barley, followed by wheat.
	Wheat.
	Corn and roots, with manure.
	Barley, oats, and spring wheat, seeded with clover.
	Clover, mown
	Clover, pastured.
	Clover, pastured, and turned under for wheat.

It will be seen that in the above course, there would be each year, 2 fields in wheat, 3 in clover; one in oats, barley, or spring wheat; one in peas, beans, or barley; and one in corn and root crops, to which all the manure of the barn-yard is to be applied. Clover is made to occupy the ground three years in succession, on account of the difficulty of procuring seed. When seed shall become abundant, it would probably be preferable to turn under the second year; and, in that case, clover might be advantageously introduced instead of "Peas, beans, and barley," between two crops of wheat.

This rotation has been contrived with a view to

give prominence to the two great staples of Michigan—wheat and sheep.

There is no room allowed in it for the naked summer fallow. This is rejected at the present day by the most skillful agriculturists, so soon as their land is so far subdued as to admit of a regular course of husbandry.

The above course is not put forth in any dogmatical spirit. Our object will be gained if the attention of farmers is drawn to this very important subject. If any plan shall occur to any of our readers, which is deemed preferable to the above, we should be glad to have it communicated.

Getting poor on rich Land, and rich on poor Land.

A close observer of men and things told us the following little history, which we hope will plow very deeply into the attention of all who plow very shallow in their soils.

Two brothers settled together in ——— county. One of them on a cold, ugly, clay soil, covered with Black-jack oak, not one of which was large enough to make a half dozen rails. This man would never drive any but large, powerful, Conastoga horses, some seventeen hands high.—He always put *three* horses to a large plow, and plunged it in some ten inches deep. This deep plowing he invariably practiced and cultivated thoroughly afterwards. He raised his seventy bushels of corn to the acre.

This man had a brother about six miles off, settled on a rich White river bottom-land farm—and while a black-jack clay soil yielded seventy bushels to the acre, this fine bottom land would not average fifty. One brother was steadily growing rich on poor land, and the other steadily growing poor on rich land.

One day the bottom-land brother came down to see the blackjack-oak farmer, and they began to talk about their crops and farms, as farmers are very apt to do.

"How is it," said the first, "that you manage on this poor soil to beat me in crops."

The reply was, "*I* WORK *my land.*"

That was it, exactly. Some men have such rich land that they won't *work* it; and they never get a step beyond where they began. They rely on the *soil*, not on labor, or skill, or care. *Some men expect their* LANDS *to work, and some men expect to* WORK THEIR LAND;—and that is just the difference between a good and a bad farmer.

When we had written thus far, and read it to our informant, he said, three years ago I travelled again through that section, and the only good farm I saw was this very one of which you have just written. All the others were desolate—fences down—cabins abandoned, the settlers discouraged and moving off. I thought I saw the same old stable door, hanging by one hinge, that used to disgust me ten years before; and I saw no change except for the worse in the whole county, with the single exception of this one farm.—*Ind. Farmer and Gardener.*

Plums.

Traveling through Kentucky lately, a farmer in the vicinity of Maysville gave me the following remedy for the diseases which sometimes aflicts plum trees, causing the plums to fall off before they are ripe. He gave it to me in the form of an anecdote, in which form I will relate it.

A gentleman in his neighborhood rented his farm to a man of considerable ingenuity, reserving to himself one-half the plum trees, of which there were quite a number. The tenant, *about the time the blossoms were bursting*, with a pen-knife, *cut round* all the principal twigs, just where they branched off from the main limbs, (being careful not to cut into the wood, but simply *through the bark.* After the succeeding rain, a glutinous matter issued from these wounds. The result of the experiment was, that the tenant's trees in due season, were filled with perfect fruit, which ripened well, while those of the owner cast most of their fruit "before the time." Indeed, the disparity was so great, that the owner of the farm, at the end of the year, would not allow the tenant to remain on it, believing that his trees had been injured by some secret application; and he could not be convinced of the true state of the case!

It would be advisable to give this experiment a limited trial, before practising upon it extensively, as it might *possibly* injure the trees.

JOHN L. WILLIAMS.

☞ The general impression now is, that the prices of wool have reached the lowest point, and that a steady demand will continue. The stock in the hands of dealers and growers is less than it was at the commencement of the year 1844, but it is considered sufficient to meet the demand for the present:

Prime Saxony fleeces, washed,	per pound,			45a50
American full blood,	"	"		40a42
" ¾	"	"		37a38
" ½	"	"		35a36
" ¼	" and common,	"		30a32
Smyrna Sheep, washed,		"		20a22
" " unwashed,		"		10a15
Bengal,	"			6a12
Buenos Ayres, unpicked,		"		7a10
" " picked,		"		10a14

The above is taken from an intelligent writer in the Boston Courier. It is encouraging to growers of wool, and we have no doubt of the correctness of the statement. The farmers of the West, and particularly of the Far West, are beginning to take up a subject—that of sheep husbandry—which has enriched every nation that has adopted it with good management and care.—*West. Farmer and Gardener.*

Industry is the mother of contentment.

ONIONS.—The average yield of this crop (in the county of Essex, Mass.) is 300 bushels per acre; sometimes as high as 500 or 600 bushels. The ordinary expense of manure and labor to an acre, may be estimated at *double* that required for Indian corn; this estimate is believed to be ample to cover all that will be requisite for a series of years, especially when it is taken into view that much of the labor of weeding and gardening may be done by children. For ten years past, some 30,000 to 60,000 bushels in a year have been raised in the single town of Danvers. The average value of the crop when brought to market, is fifty cents per bushel, $150 per acre. In what way can so fair a profit be realized from the land?—*Proctor's Address.*

CLEANING SILK.—The following directions for cleaning silks are by one of the first Parisians dyers; half a pound of soft soap, a tea spoon full of brandy, and a pint of gin; mix all together; with a sponge or flannel, spread the mixture on each side of the silk, without greasing it; wash it in two or three waters and iron it on the wrong side; it will then look as good as new.

To preserve steel instruments from rust—take a piece of buckskin, and rub it over with a few cents' worth of mercurial ointment. This applied, will preserve steel from rust, but will not take it off when once on.

Garden and Field Seeds,

Just received from the Rochester Seed Store, and for sale at the Rochester prices. Enquire at the office of the Michigan Farmer.

Jackson, April 21st, 1845.

CONTENTS OF THIS NUMBER.

Letter from Mr. Hubbard, 17
Hints to the Cultivator of Fruit; Bees; Study of Botany, 18
Joint culture of Flax and Carrots; Hints to the Cultivator of Fruit, 19
Gypsum-Plaster-Sulphate of Lime, 20
Madder, 21
Sheep's tails; To raise fine melons, 22
Esterly's patent Harvesting Machine; Culture of Indian Corn, 23
Diarrhœa, or Scours in Calves, 24
Hall's Stump Machine; What shall be done with Ashes? Experiments in Planting; Cure for Fistula, or Poll-evil; Cure for proud flesh in Horses, 25
Chemistry of Soap, 26
To improve the flavor of Coffee; To Correspondents; Corn-stalk Sugar, 27
Ditching Plough; Necessity of Rotation, 28
Getting poor on rich land, and rich on poor land; Plums; Prices of Wool, 31
Onions; Cleaning Silk; To preserve steel instruments from rust; Contents of this No.; Market Intelligence; Advertisements, 32

MARKET INTELLIGENCE.

JACKSON, May 1.

Wheat 70 cts., Corn 30 to 35, Oats 25; Flour (at retail) $3,50 to 3,75; Beans 75 cts., Potatoes 18¾, Clover Seed (retail) $6 00, Timothy 87½ to $1; Wood, cord, 87½ cts.; Hams lb., 7 cts, Pork bbl., $12; Lard 7 to 8 cts., Butter 15, Eggs 7, Tallow 9 to 10; Sheep skins lb., 4, Green hides 3 to 3½, Dry do 6, Calf skins green 6.

EXTENSIVE SALE OF IMPROVED SHORT HORNED CATTLE.

HAVING become over stocked, I find myself under the necessity for the first time, of publicly offering my cattle for sale; and that the opportunity to purchase fine animals may be made the more inviting, I propose to put in my Entire Herd—such a herd of Improved Short Horns as has never before, perhaps, been offered by any individual in this country. The sale will embrace about fifty animals, Bulls, Cows and Heifers; all, either imported or the immediate descendants of those which were so, and of perfect pedigree. Those imported were from several of the best stocks in England, selected either by myself or my friends.

It is sometimes the practice at sales of this kind, where the interest involved is considerable, for the proprietor to protect himself by buy bidders, or some other kind of management, or for the owner to stop the sale if offers do not come up to his expectations or the requirements of his interest. Such practices have a tendency to lessen the interest in public sales of this character, especially with those who cannot attend without considerable personal inconvenience. But in this case, assurances are given that no disappointment shall arise to the company from either the causes mentioned, and a good degree of confidence is felt that there will be no dissatisfaction from the character of the cattle themselves.—They shall be submitted to the company, and sold at such prices as they choose to give, without any covert machinery, effort or understanding with any persons; reserving to myself only the privilege of bidding openly on three or four animals, which shall first be designated. The reservation is made that I may not get entirely out of the stock of some particular families which I highly esteem, and that probably could not be replaced.

A full catalogue will be prepared and inserted in the May number of the Cultivator.

The sale will take place at Mount Hope, one mile south of the city of Albany, on Wednesday, the 25th day of June next, at 10 o'clock A. M.

E. P. PRENTICE.

Mount Hope, near Albany, March 15, 1845.

☞ Gentlemen from a distance, who wish to obtain stock at the above mentioned sale, and may find it inconvenient to attend in person, are informed that the subscriber will make purchases for those by whom he is authorized. They can state the sum at which bids should be limited, and if convenient, designate the animals they would prefer; or give such general instructions as they may deem proper, under the assurance that they will be strictly adhered to.

SANFORD HOWARD,

Cultivator Office, Albany, March 15, 1845.

ANN ARBOR GARDEN AND NURSERY.

AT THE Ann Arbor Garden may be found a very choice collection of

Fruit Trees,
Ornamental Shrubbery,
Hardy Roses,
Perrennial Flowering Plants,
Bulbous Flowering Roots,
Green House Plants,
Monthly Roses,
Splendid Double Dahlias,
Garden Seeds,
Flower Seeds.

S. B. NOBLE.

Ann Arbor, April 1, 1845,

Michigan Farmer.

TERMS.

For single subscribers, 50 cents a year. Five copies for Two Dollars, forwarded in advance by a post master, or post-paid; and in the same proportion for any larger number. No subscriptions received for less than a year. Back numbers furnished to future subscribers.

Advertisements pertaining to Agriculture will be inserted on our last page at $2 50 per square for 3 months—or at One Dollar for the first insertion, and 75 cents for each continuance.

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